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[57] **ABSTRACT**

The present invention enables a computer system to store from register files to memory, and restore from memory back to the register files, data from programs designed to operate in accordance with a first word size, as well as programs designed to operate in accordance with a second word size. This is accomplished without an increase in hardware and without requiring modification of existing software. In particular, an indication is utilized at the procedure level to designate whether a particular procedure is using words of a first or second word size. Preferably, this indication is placed in a first predetermined bit position in the stack pointer of the procedure. When a save occurs, certain contents from the register file are saved to memory along with the stack pointer. Under certain circumstances, the word size indication is moved to a second predetermined bit position within the stack pointer which is stored in a predesignated stack pointer address in the save area. When the contents are restored from memory, back to the register file, the indication is reviewed in the stack pointer address and serves to determine the word size of the procedure being restored.

16 Claims, 3 Drawing Sheets